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Going the Green Way

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CONTENTS

2 * Rooting for Conservation
6 * Promoting Green Rides
8 * Pedaling for Clean Air
11 * Driving Climate Action
15 * Expanding the Green Lungs
18 * Energy-Efficient Housing
19 * Storytelling in a Changing Climate
22 * From Trash to Music
25 * Rewriting the Narrative on Plastics
27 * Creating Wonders
30 * Building a Circular Economy
32 * Managing Waste to Improve Communities
34 * Living Sustainably
37 * Exploring Solutions
40 * Combating Air Pollution
42 * Energy-Efficient Railways

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Front cover:
Riders use Yulu electric bikes, which are available for rent at affordable prices, in New Delhi. Photograph by Hemant Bhatnagar

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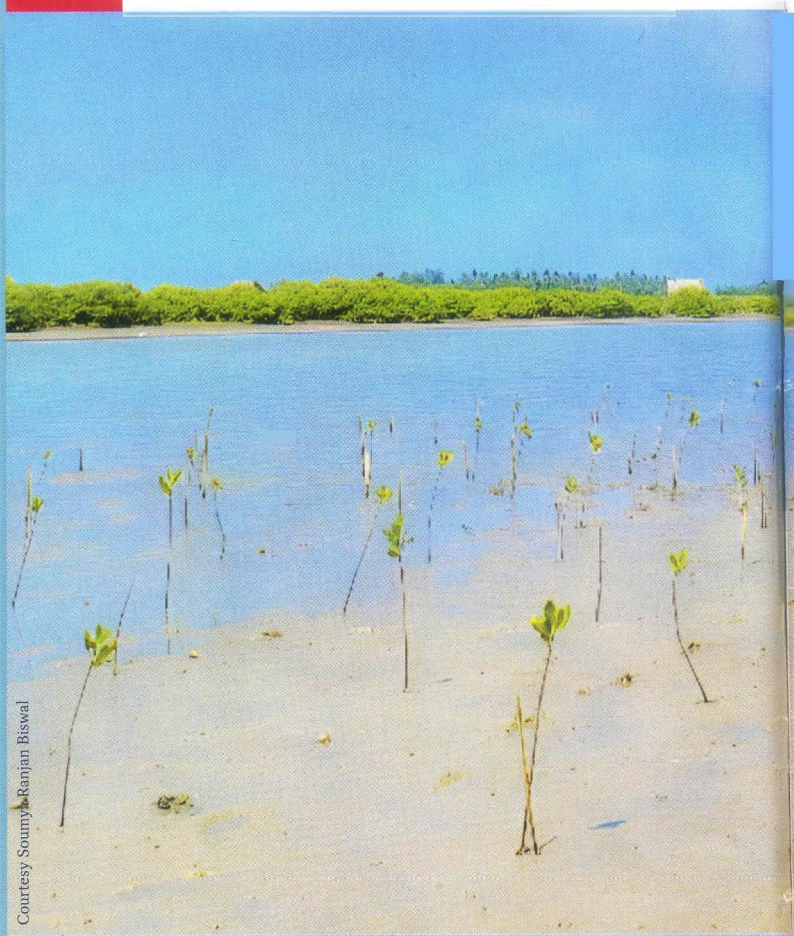


Courtesy Soumya Ranjan Biswal

Soumya Ranjan Biswal, a 26-year-old environmentalist, grew up watching olive ridley sea turtles nest on the shores of his home district Puri in Odisha. Over the years, he has also seen the nesting take a serious hit. For him, protecting these sea turtles and their habitat is more than just a cause. It's a way of life.

Biswal is a member of the first cohort of the U.S. State Department funded-Climate Action Champions Network program and an alumnus of U.S. Consulate General Chennai's TechCamp Kochi. In April 2023, he

Environmentalist Soumya Ranjan Biswal works on mangrove and wetland biodiversity conservation in Odisha.

Rooting for Conservation

BY KRITTIKA SHARMA

participated in an International Visitor Leadership Program (IVLP) on climate change and biodiversity conservation in the United States. The IVLP is the U.S. State Department's premier professional exchange program. Biswal is also a managing trustee of the Odisha Paryavaran Sanrakshan Abhiyan Trust, a voluntary movement dedicated to preserving coastal biodiversity in rural Odisha. His activism is largely focused on raising awareness on climate change, environmental degradation and marine ecosystems along the state's coast.

ABOVE / Soumya Ranjan Biswal at a mangrove plantation site.

A childhood spent on shores

Biswal is from Astaranga, a village in Odisha's Devi river mouth area known for its rich marine biodiversity. Cherishing and conserving the mangroves and marine ecology around his village were an integral part of his childhood. Biswal says his first glimpse of the magnificent biodiversity of his village came from visits to the shore during 6th grade.

"Dr. Robert Sutcliffe, a dentist from Canada, would visit our school regularly and raise awareness about olive ridley turtle mortality on the Indian Coast," remembers Biswal. "He would take us to the beach for clean-ups and provide study material, which instilled in me a love and care for the beach."

Olive ridleys are known for their mass nestings in Odisha making it the largest mass nesting site in the world. The areas of Rushikulya, Gahirmatha and the Devi river mouth are three key nesting zones. Biswal says he has patrolled the Devi river mouth beaches since childhood, protecting the turtle nests from predators like snakes, dogs, pigs and crabs.

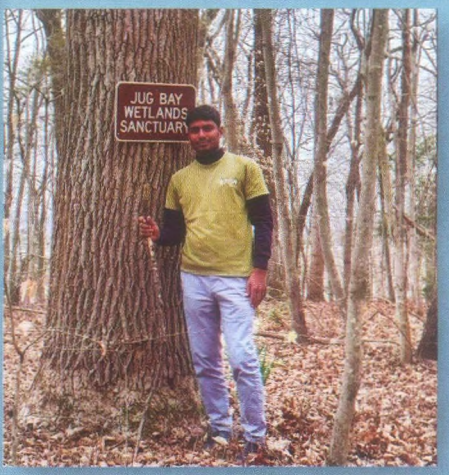
"I realized that coastal biodiversity conservation is an important tool for preserving the ecosystem and securing it from cyclonic storms and climate crises," he says. "In 2014, I mobilized my college friends and started working toward conserving the mangrove forests and olive ridley turtles."

Saving the mangroves

Known to act as a buffer against natural disasters, mangroves are subtropical trees that flourish in standing, salty water and are found along the coast in West Bengal, Odisha, Andhra Pradesh, Maharashtra, Gujarat and the Andaman and Nicobar Islands. "The dense network of roots and branches of mangroves traps sediments and reduces the impact of waves and tides, which can help protect coastal communities from flooding and erosion," explains Biswal.

Biswal's drive to save the mangroves is also a tale of survival. "In recent years, the Devi river mouth area has experienced several natural calamities, including cyclones and floods, which have caused significant damage to the local communities and their livelihoods," he explains. "The mangrove forests have played a critical role in protecting the lives and property of the people in the area."

Biswal says the presence of mangroves on the



Photographs courtesy Soumya Ranjan Biswal

TOP RIGHT / Soumya Ranjan Biswal collects mangrove seedlings from mature trees for plantation at mangrove nurseries. ABOVE LEFT / Biswal has mobilized students and officials to get involved in campaigns to protect olive ridley sea turtles and coastland biodiversity. ABOVE RIGHT / Biswal at Jug Bay Wetlands Sanctuary in Maryland during the International Leadership Visitor Program.

RIGHT / Migratory olive ridley sea turtles flock the Rushikulya rookery along the Odisha coast for their annual mass nesting. *BELOW RIGHT / Soumya Ranjan Biswal at a rescue operation to protect baby olive ridley sea turtles from fishing nets during mass hatching.*

Photographs courtesy Soumya Ranjan Biswal

Astaranga coast diverted the path of Cyclone Fani's landfall in 2019, saving the village from destruction. "Cyclone Fani was expected to make landfall in the Astaranga area, but later it changed direction. We believe it was because of the mangroves," he says.

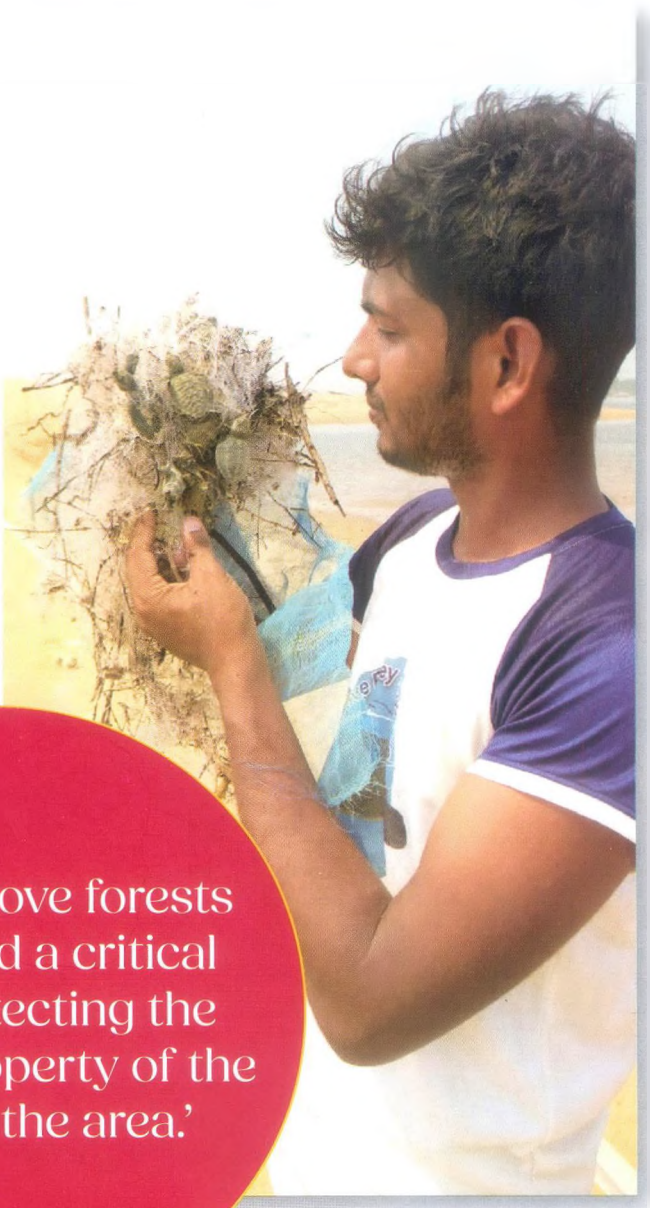
Biswal's activism to save the mangrove forests took root early in life. "There were just two lines that mentioned how mangroves protect shorelines in my 10th grade geography book," he says. "I realized that there was zero awareness among the public about the importance of mangroves and wetlands in combating climate change and protecting the environment. People were cutting down mangroves and encroaching on wetlands without realizing the consequences of their actions."

In 2014, Biswal mobilized awareness campaigns on the importance of mangroves and wetlands. "I used my limited resources to organize cycle rallies, street rallies, mural painting and school awareness programs," he explains.

A year later, he started regularly patrolling the river banks adjoining the mangroves by bicycle, covering about 30 villages and wards between the Devi river mouth and the Kadua river mouth in the Puri district.

His patrolling drew the local administration's attention and wetland encroachment has reduced significantly. Biswal says so far, about 8,000 students in the region have pledged to control the river and mangrove pollution, protect mangroves with their families, and promote wetland awareness.

Going forward, Biswal says his goal is to raise awareness about climate change on the Odisha coast by creating a network of communities, youth and policymakers who are most affected by it. And most of all, he wants to continue his work protecting the mangrove forests and nesting grounds of olive ridley turtles, but now with greater support and resources.



'The mangrove forests have played a critical role in protecting the lives and property of the people in the area.'

With support from DFC, Yulu is helping mitigate carbon emissions and reduce traffic congestion.

Promoting Green Rides

BY MICHAEL GALLANT

Imagine renting a bike, zipping past cars stuck in jams, without breaking a sweat or receiving your dinner order early because your delivery executive can navigate traffic quickly and bring you your order, piping hot. And all this without adding to the air pollution from transportation. This is what Yulu offers you.

Founded in 2017, Yulu provides electric bikes for short-term rentals at affordable rates in Bengaluru, Mumbai and Delhi-NCR. In November 2022, it received a commitment for a $9 million loan from the U.S. International Development Finance Corporation (DFC). Ajay Rao, regional managing director, South Asia, at DFC, says the loan will support Yulu as it expands its fleet by at least 20,000 electric bikes. The new bikes will be available in multiple Indian cities, empowering low-income workers to deliver packages more easily. These new bikes will also help reduce congestion and air pollution in urban areas.

"We believe that shared mobility plays a crucial role in empowering people by opening up employment opportunities, facilitating better and safer commutes, increasing women's mobility and participation, reducing traffic congestion, mitigating carbon emissions, and thus improving overall quality of life in urban areas," says Anuj Tewari, chief financial officer at Yulu.

Social and ecological impact

The partnership between Yulu and DFC began when Tewari and his colleagues recognized that the two organizations shared common values. "Yulu's commitment to carbon emission reduction through sustainable mobility, integrating technology to generate employment while addressing the pressing need for innovative mobility solutions, and focus on empowering women through easily accessible vehicles aligned closely with DFC's mission," says Tewari. "Through initiatives like the Safe Rider program, Yulu is also educating delivery executives on road safety to create a positive social impact."

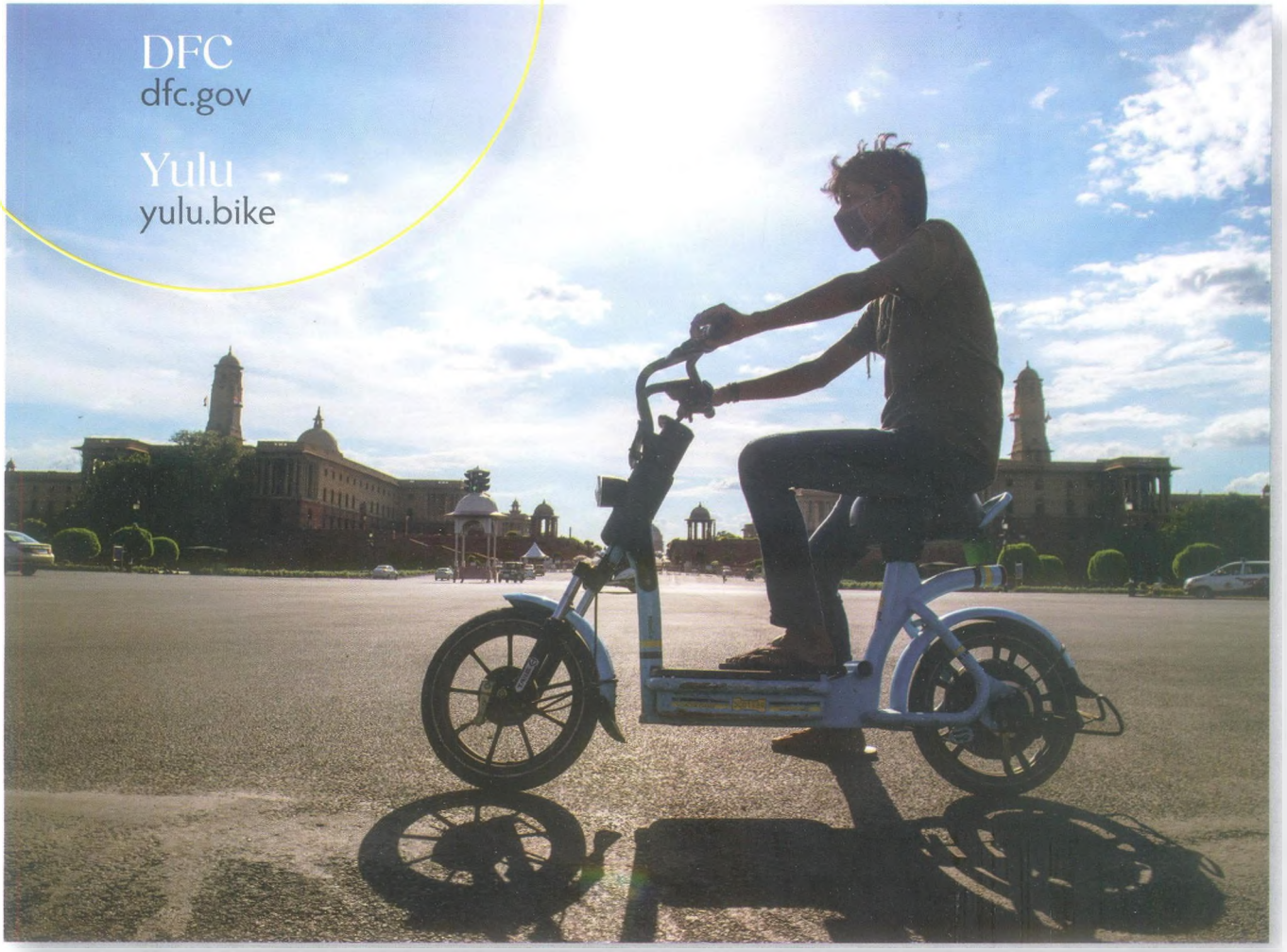
"The DFC loan not only brings much-needed resources to accelerate our scaling-up and path to profitability," Tewari continues, it also "amplifies our ability to create positive ecological and social impact."

Yulu has helped Indian companies make over 75 million environmentally sustainable deliveries and save over 20 million kilograms of carbon dioxide emissions. But Yulu's plans for the future are even more ambitious. The company expects to grow its fleet to over one million vehicles, offer its services in major cities around the world, and become a leader in the area of shared electric bikes.

Looking to the future, DFC's Rao has great hopes for Yulu. "We would like to track Yulu's growth in profitability and cash flow while, at the same time, seeing an increase in electric delivery bikes on the road."

MICHAEL GALLANT is a New York City-based writer, musician and entrepreneur.

'The DFC loan not only brings much-needed resources to accelerate our scaling-up and path to profitability, it also amplifies our ability to create positive ecological and social impact.'



© PradeepGaurs / Shutterstock.com

Courtesy Yulu

ABOVE / The Yulu Miracle CT is lighter than a scooter but faster than a bicycle. LEFT / The Yulu DEX NV is specifically designed to be cost-effective for gig economy workers.

Bicycle mayors help urban residents reduce their carbon footprints and build a sustainable future.

Pedaling for Clean Air

BY STEVE FOX

© Arijeet Bannerjee / Shutterstock.com

ABOVE / *People can reduce their carbon footprints by using bicycles for daily commutes.*

Courtesy Matrushri Shetty

Above / IVLP alumna Matrushri Shetty.

What if there was a simple, inexpensive way to reduce your contribution to air pollution, improve your health and have some fun all at the same time?

Meet bicycle mayors, a grassroots network of cycling enthusiasts who are doing their best to get more people pedaling in 52 cities in India.

The bicycle mayors

"Bicycle mayors are people who have a passion for cycling, but who also want to bring about change in their communities because they understand that cycling can bring about important changes in how we live in our urban settings," says Matrushri P. Shetty, director of operations and development for the BYCS India Foundation. The Bengaluru-based foundation works in association with BYCS, an Amsterdam-based nonprofit that has bicycle mayors active in 39 countries.

BYCS India Foundation
india.bycs.org

International Visitor Leadership Program
bit.ly/3OcZ9eM

In 2022, Shetty was selected for the International Visitor Leadership Program (IVLP), the U.S. Department of State's premier professional exchange program. "The IVLP gave me perspective on the common challenges India and the United States are facing," she says. "It also gave me a broader understanding of the post-pandemic needs—more emphasis than ever on preventive medicine and environmental health."

Road to 'mayorship'

Selection of bicycle mayors, who are all volunteers, is a very rigorous process. "Anyone can apply," says Shetty, "but they must submit a work plan for what they would do to promote cycling in their city and get endorsements."

"My goal was to create a more bike-friendly city where cycling was seen as a safe, convenient and enjoyable mode of transportation," says Ashik Jain, an architect, urban planner and bicycle mayor in Pune, Maharashtra. "By encouraging more people to take up cycling and promoting better infrastructure and policies to support them, I hoped to create a healthier, more sustainable and more livable community for everyone."

A cleaner future

The BYCS India Foundation envisions "an inclusive, resilient and livable urban future where the majority of the Indian urban population adopts the bicycle for daily trips."

Those daily trips can make a big difference. A 2021 study in Europe found that using a bicycle instead of a car even once per day reduced each rider's carbon footprint by about 0.5 tons over a year, representing a 67 percent decrease in an average person's

BELOW / A community ride to promote bicycle-friendly neighborhoods in Silvassa.

Courtesy Matrushri Shetty

'Each city faces its own challenges, but our goal is to get more people in India to use bicycles for daily transportation.'

transportation emissions.

"Each city faces its own challenges, but our goal is to get more people in India to use bicycles for daily transportation," says Shetty. "Cycling ridership in India is hard to quantify, but we estimate that about 13 percent of workers use bicycles daily, and we want to increase that number."

Bicycle mayors are most active in Bengaluru, Chennai, Delhi, Mumbai, Hyderabad, Guwahati and Pimpri Chinchwad, Shetty says.

Community support

In addition to promoting cycling, bicycle mayors often take an active role in helping their communities in other ways like helping distribute medicine to COVID-19 patients. "When the title is used appropriately, it is magical," says Santhana Selvan, an IT professional and bicycle mayor in Hyderabad, Telangana, noting that bicycle mayors were an important asset to their communities during the COVID-19 pandemic.

"When we were operating the project Relief Riders in Hyderabad, we delivered medicine and essentials to senior citizens and COVID-19 patients," says Selvan. "We proved that cyclists are not a problem on the road, but a solution, performing community services. It was very satisfying to help the elderly and needy. I feel I have found my purpose."

Similarly, Swarupa Shah, yoga trainer in Dadra and Nagar Haveli and Daman and Diu, says she became a bicycle mayor to motivate as many people as possible to use bicycles. "I wanted to encourage housewives and more children to use bicycles and build a strong cycling community for a better tomorrow. That was only possible by becoming a bicycle mayor."

STEVE FOX is a freelance writer, former newspaper publisher and reporter based in Ventura, California.

Courtesy Jayprakash Nayak

ABOVE / The Climate Action Champions Network brings together young leaders from Bangladesh, Bhutan, India, Nepal and Sri Lanka to work on climate action in their home countries and the Indo-Pacific region.

A U.S. State Department-funded program brings together the brightest minds from five South Asian countries to fight the climate crisis.

Driving Climate Action

BY KRITTIKA SHARMA

India and its neighboring countries account for a considerable chunk of the world's population and biodiversity but also bear the brunt of climate change. The U.S. State Department-funded Climate Action Champions Network (CACN) brings together young leaders from Bangladesh, Bhutan, India, Nepal and Sri Lanka to lead initiatives and advocate for climate action in their home countries and the Indo-Pacific region.

Read about three Indian members of the first CACN cohort.

Photographs courtesy Sahaana Sankar

TOP AND ABOVE / Sahaana Sankar is a social development specialist who believes social and economic empowerment is key to starting a conversation on sustainability.

A voice for awareness

As a social development specialist who works with women, tribal farmers and first-generation learners, Sahaana Sankar believes social and economic empowerment is key to starting a conversation on sustainability. "The more empowered a community, the more voice they have to bring about change and talk about sustainability," she explains. "We have seen women with a voice influence government decisions at the local body level. For instance, at a village meeting where women advocate for water lines or plantation of trees. Economic empowerment leads to more financial independence, access to information and freedom with the ability to make environment-friendly consumption choices."

Sankar is the chief operating officer at Hand in Hand India, and focuses on communications and fundraising, primarily through social media. "I believe that social media has a powerful voice in advocating for change," she says. Hand in Hand is a global nonprofit organization that works toward fighting poverty and creating jobs.

An engineer by education, Sankar is part of the first CACN cohort, and attended its first conference in Kathmandu, Nepal. The conference "provided the cohort with the big picture on climate change and helped us understand the long-term and short-term goals that we must set to overcome the challenges," she says.

The similarities among South Asian countries, especially topographical and social, mean the cross-pollination of ideas helps create well-rounded solutions to climate problems. "Most agricultural production practices in India, Sri Lanka and Bangladesh are similar. The terrains of Bhutan and Nepal are similar and ideal for the production of hydroelectricity. Bangladesh's conservation of mangrove forests mirrors India's expertise. Our experience is similar—despite the abundance of natural resources, they have been exploited."

Going forward, Sankar says she wants to use this opportunity to amplify her "voice on social media to create awareness on the impacts of climate change at the grassroots and share different South Asia-based learnings on combating them."

"I would also like to implement some simple tech-based solutions in agriculture and water conservation that will help farmers in the long run to increase farmland productivity," she adds.

Climate Action Champions Network
bit.ly/3Ogrocm

Collaborating for change

Soon after completing her bachelor's degree at IIT Delhi, Kanika Prajapat co-founded Kriya Labs. The start-up creates sustainable tableware from agricultural waste. For Prajapat, it was not just about dealing with the problem of air pollution by making crop stubble useful, but also about helping farmers monetize the waste.

Her interactions with the farming communities of Punjab, Haryana, and her home state, Rajasthan, helped her understand how climate change affected marginalized communities severely. "They shared their experiences about how unexpected rains, locust attacks, cold waves and heat waves have made it difficult for them to obtain consistent crop yields and pay off their debt," she explains.

During the COVID-19 lockdown, Prajapat started exploring communities that work on climate change and came across a London-based charity, ClimateScience. "I started volunteering with their global Olympiad program in January 2021," she says. "Within months, I was offered to join the core leadership team at ClimateScience, as director of the ClimateScience Olympiad." At ClimateScience Olympiad, Prajapat works with volunteers across continents and focuses on increased student participation. "In 2022, working with a team of 40 volunteers, I grew the Olympiad to 190 countries, engaging 55k students so far," she says.

Being a CACN fellow is an extension of that role. "By working with peers from different countries, I am able to develop a more holistic and nuanced understanding of the challenges we face in addressing climate change, and identify more effective and sustainable solutions relevant to the diverse contexts in which we work," says Prajapat.

The interactions with CACN cohort members made her realize that climate change impacts vulnerable communities in different ways. "In Bangladesh, rising sea levels and increased salinity in freshwater sources are affecting agriculture and freshwater access, leading to the displacement of communities. In India, heat waves, floods and droughts are becoming more frequent and intense, exacerbating existing water and food insecurity. In Nepal, glacial retreat is leading to a higher risk of water scarcity, while in Sri Lanka, increased rainfall is causing landslides and flooding," she explains.

After completing her fellowship, Prajapat wants to get involved with other fellows on agriculture and climate finance projects. "I hope to get involved with them and use our collective expertise and networks to engage in advocacy and policy work," she says, "pushing for systemic change at the local, national or international level."

Courtesy Kanika Prajapat

ABOVE / Kanika Prajapat is an entrepreneur who wants to work on projects related to agriculture and climate finance.

Photographs courtesy Jayprakash Nayak

ABOVE / Before becoming a Climate Action Champion, Jayprakash Nayak (above right) was a Young Climate Leaders Action Project volunteer, where he worked on finding the reasons behind the lack of proper waste segregation in communities.

Planning for mitigations

Jayprakash Nayak was 19 years old when Cyclone Fani hit the coast of his home state, Odisha, in 2019. The cyclone destroyed homes, farmlands and towns that fell in its path. The havoc it left in its wake moved Nayak. "It made me realize how our cities are less adapted to climate change's impacts and the devastating impact it can create if we're entirely unprepared," he says.

This, and the erosion of the Odisha coast, has informed the way Nayak looks at climate change. "Living near the coastal area of Odisha impacted me in a certain way and made me seriously think about climate change," he says.

In June 2021, Nayak was selected by the U.S. Consulate General Hyderabad for the Young Climate Leaders Action Project (Y-CLAP), along with 15 other volunteers. As a Y-CLAP volunteer, he was involved in using the Barrier Identification Tool to identify non-climate-friendly behaviors. "It assisted me in finding the core reasons behind the excessive use of plastic and the lack of proper waste segregation in our society," he says.

Nayak now works on raising "the issue of climate change, its adaptations and mitigations at basic levels and among policymakers, where my suggestions are being valued." He is also researching the climate budget and its importance in achieving India's NDCs (nationally determined contributions) goals as part of the Paris Agreement to help develop a comprehensive climate action plan.

Being a part of the CACN program has given Nayak the space to "educate people about different aspects of climate change and its impact on Odisha," as well as understand how climate change impacts geographies and upcoming climate risks in South Asia.

The program has offered Nayak valuable exposure. From learning about start-ups and initiatives that work in the space of climate change, he is also learning about the significance of mangroves and coastal ecosystems, and building climate-resilient infrastructure to protect coastal belts.

After completing his fellowship at CACN, Nayak hopes to be engaged in policy advocacy to encourage state and national governments to integrate climate action into long-term budget planning. "I will also be researching the economic impacts of climate change, like the linkages between climate change's effects on poverty, inequality and inflation," he adds.

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ABOVE / A deep-rooted and deciduous tree, the Indian gooseberry can help conserve water in rainfed areas.

The Trees Outside Forests in India program is helping boost the country's natural environment and economy by nurturing trees in farms, cities and parks.

Expanding the Green Lungs

BY MICHAEL GALLANT

Trees fill beautiful forests across India—but they also grow in countless other places, from the biggest cities to the smallest villages.

A new collaboration between the governments of India and the United States seeks to increase the number of trees in urban and rural areas, fighting climate change and helping local communities in the process.

The Trees Outside Forests in India (TOFI) program was launched in 2022 as a collaboration between India's Ministry of Environment, Forest and Climate Change and the U.S. Agency for International Development (USAID). The multimillion-dollar partnership was created to help farmers, businesses and community organizations plant trees to cover 28 lakh hectares of non-forest land.

Courtesy @usaid_india / Twitter

LEFT / USAID India Deputy Mission Director Karen Klimowski (left) launches the Trees Outside Forests in India program in Assam, in October 2022.

The newly-planted trees are expected to help India remove almost half a billion tons of harmful carbon dioxide from the atmosphere in the coming years. More trees across India will also help purify water and stabilize natural habitats for many species.

Greener farms

"Growing trees is one of the easiest and most sure-shot ways to address climate change," says Varghese Paul, deputy director for environment at USAID India, and the lead for TOFI. "At the same time, it provides other social and economic benefits like enhanced income for farmers."

The TOFI program will help farmers and other tree planters gain access to high-quality tree planting materials, guide them as they establish tree-based businesses, help them access the technical and market information they need to be successful, and connect them with finance and insurance resources that can help their tree-farming activities thrive.

Through the TOFI program, Paul expects to enhance tree planting in the country's regular farming system, where farmers nurture saplings alongside other crops.

Increasing stakeholders

Paul says the program will collaborate with Dabur India Limited, an Indian consumer goods, pharmaceuticals and cosmetics company, to provide quality seedlings and technical information to farmers participating in TOFI and offer to purchase products of medicinal and aromatic value from farmers. More partnerships with private companies are coming soon, he adds.

"The program can support a vibrant tree-based economy that is inclusive and combines ecological security with economic prosperity and environmental sustainability," says Y. Madhusudhan Reddy, principal chief conservator of forests-wildlife and chief wildlife warden for Andhra Pradesh.

Paul has seen great enthusiasm for the program across multiple Indian states. In addition to Andhra Pradesh, he says that organizations from Tamil Nadu, Odisha, Rajasthan, Haryana, Uttar Pradesh and Assam have contacted USAID for tree-planting collaborations.

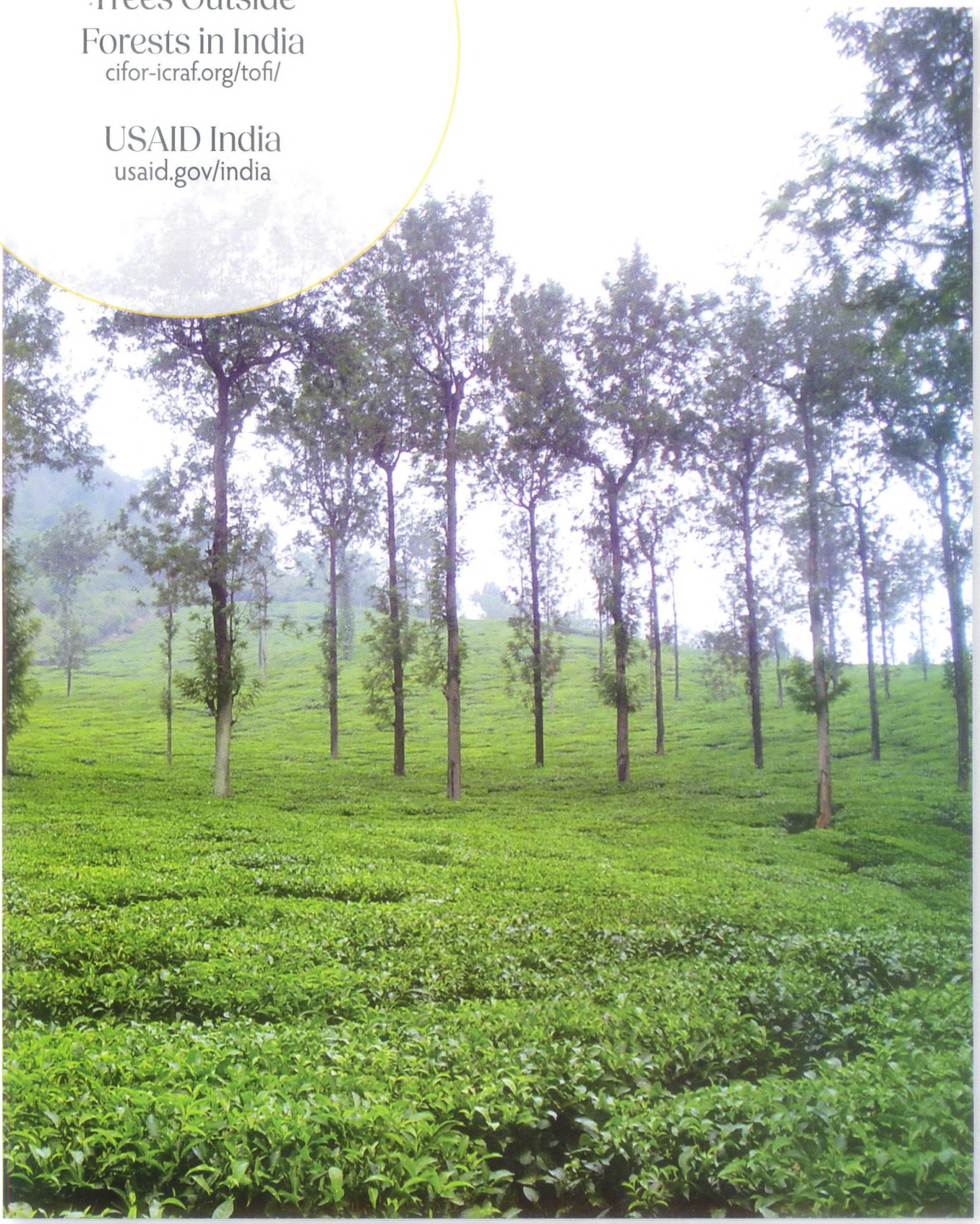
Odisha's minister for environment, forest and climate change, Pradip Kumar Amat, says the TOFI program aligns with the state's efforts to augment its green cover. "A notable growth in green cover over the past two years is an outcome of the Government of Odisha's unwavering commitment to improve the natural environment. The Trees Outside Forests in India program is well placed to supplement and reinforce existing efforts to increase farmer incomes and also make agriculture more climate resilient."

Fighting climate change and supporting local communities takes commitment and effort, and Paul encourages the youth to get involved. "Many youth and youth organizations are at the forefront of the fight against climate change and raising awareness about it," he says. "Interested youth can join TOFI campaigns and outreach efforts to expand tree cover." Readers can reach out to Sakshi Gaur (s.gaur@cifor-icraf.org), communications specialist at World Agroforestry, USAID's implementing partner for TOFI.

MICHAEL GALLANT is a New York City-based writer, musician and entrepreneur.

Trees Outside Forests in India
cifor-icraf.org/tofi/

USAID India
usaid.gov/india



© Devashree Nayak

ABOVE / Commercial agroforestry system, with silver oak and black pepper trees in a tea orchard in Wayanad, Kerala.

USAID works with the Lucknow Development Authority to construct sustainable and energy-efficient houses.

Energy-Efficient Housing

titoOnz / iStock / Getty Images

BY STEVE FOX

India's economy is growing rapidly. Researchers at Harvard University's Growth Lab project predict that India will rank among the world's fastest growing economies through 2030.

With this growth come challenges and opportunities. India has a unique opportunity to design and develop economical and energy-efficient construction. About 70 percent of India's new infrastructure will be in urban areas in the next 20 years.

Buildings are critically important on both the energy and environmental fronts. They account for 35 percent of India's overall power consumption and contribute significantly to its greenhouse gas emissions.

The PMAY project

Pointing the way forward to more energy-efficient and environmentally conscious housing is the Pradhan Mantri Awas Yojana (PMAY) project. This government-sponsored project is providing 11.2 million affordable and environmentally-sustainable dwellings for the lower-income urban populations in the Lucknow region.

The Lucknow Development Authority (LDA) has worked with the U.S. Agency for International Development (USAID) to create sustainable urban infrastructure. For instance, LDA used the vision and roadmap for energy-efficient buildings drafted in collaboration with USAID, while designing and constructing the green homes under the PMAY project. Additionally, USAID has developed the Green Building Criteria (GBC), which provides minimum requirements for energy-efficient design and construction to reduce energy and water consumption. This GBC is mandatory for all residential and commercial LDA buildings.

Lucknow's green homes

PMAY's green homes use sound-proof building material with a higher thermal rating. This provides well-insulated interiors for reduced energy consumption, LED and natural lighting, water saving fixtures and 100 percent green building material. The PMAY developments devote 15 percent of their sites to natural vegetation, preserve existing trees where possible, harvest rainwater, and provide public parking for all the units. Each block also has a solar panel.

The USAID program is an example of the long-term commitment to energy efficiency by successive USAID programs in India since 2000. In 2002, USAID efforts brought together the Confederation of Indian Industries and the U.S. Green Building Council (USGBC) to form the Indian Green Building Council. This catalyzed an era of energy efficient and green building construction in India. Starting from one building in 2002, today there are over 5,000 registered green buildings in the country, with a total area of more than six billion square feet, and a vibrant green building market.

USAID, in coordination with a number of government, public and private sector partners, has collaborated with the USGBC to develop a strategic approach scalable to other countries intended to establish a bigger regional green building market.

USAID's implementing partner, Environmental Design Solutions, has worked on more than 350 green building and energy-efficiency projects worldwide since its inception in 2002. John Smith-Sreen from USAID India states, "Our collaboration created opportunities for people, institutions and communities to promote greater energy efficiency within buildings, appliances and cities."

STEVE FOX is a freelance writer, former newspaper publisher and reporter based in Ventura, California.

Courtesy Teamwork Arts

ABOVE / Economist Sanjeev Sanyal (from left), Martin Puchner and C. Raja Mohan, senior fellow at the Asia Society Policy Institute-Delhi, at a Jaipur Literature Festival session presented by U.S. Embassy New Delhi, in February 2023.

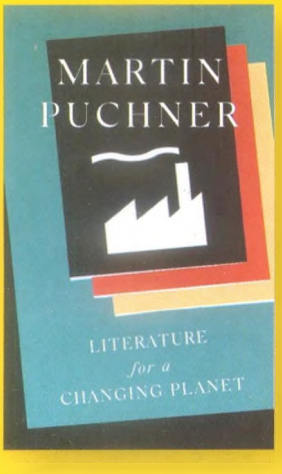
Author Martin Puchner talks about the impact of narratives and literature on human behavior toward climate change.

Storytelling in a Changing Climate

BY MONISA NADEEM

'When it comes to climate change, we have the science; we have many engineering solutions. What we now need is a cultural shift.'

Gretjen Helene



ABOVE / *Martin Puchner's book, "Literature for a Changing Planet," offers insights into the fundamental relationship between storytelling and the environment.*

Martin Puchner, a professor of drama and of English and comparative literature at Harvard University, believes storytelling deeply affects how we react to world events—like climate change. In his latest books, "Literature for a Changing Planet" and "Culture: The Story of Us," Puchner investigates how daily narratives shape the way we look at climate change, and how creating the right narratives are essential to pushing humanity forward.

Puchner is a prize-winning author whose books range from philosophy to the arts. His "Norton Anthology of World Literature" remains one of the most trusted compilations on the subject. SPAN spoke to him on the sidelines of the Jaipur Literature Festival 2023, where he was a speaker at "The Oceans: The Victims and the Saviors," a session presented by the U.S. Embassy New Delhi.

Excerpts from the interview.

Storytelling and climate change is your area of expertise. What piqued your interest in these themes?

For me, it was two interests coming together. For the past decade, I had been working on the impact of storytelling on history in my book, "The Written World." This extremely wide-ranging project included texts that had a measurable impact.

At the same time, I have been very concerned about climate change. At some point, I realized that these two interests were related, that there was a connection between the stories we tell about nature and the path we took toward human-made climate change. So, I tried to think through this connection in my book, "Literature for a Changing Planet."

To what extent do stories have the power to impact human behavior and action in terms of climate change?

There can be no doubt that stories have an impact on human behavior. I don't mean that everything you read leads to immediate changes in thinking or behavior. I focus on what I call the foundational stories of entire civilizations, that get retold over generations. We may not always realize that some of these foundational stories have implications for climate change. Forty years ago, few people would have thought about the Epic of Gilgamesh or of the Bible in those terms. But now, we're waking up to the inadvertent effects of these stories on human attitudes toward nature.

While most of us see oceans as victims of climate change, in what ways do you think oceans could help mitigate the impact?

My storytelling approach analyzes the types of stories we tell about nature. When it comes to climate change, we revert to certain figures or roles: villains and victims. Sometimes, identifying villains and victims can be useful, but I have come to feel that we rely too much on them.

This is why I liked the session [at the Jaipur Literature Festival 2023] and the way it was formulated. It called attention to how quickly we assign roles of victim or savior even to something as vast and complex as the ocean. For me, the key takeaway was that we need to be more careful about how we talk about the ocean. These roles press the ocean into a certain role in a certain type of story, and that story is likely to be too limited and misleading. We need to find a new role for the ocean, one based on actual ocean science.

What role could the United States and India play in safeguarding our oceans and ensuring a sustainable blue economy?

There are lots of things to do that go way beyond my expertise, from marine biology to economics. Both the United States and India are countries with extremely extensive coastlines. And yet, their political mythologies have focused on land: the "heart" of each country is not in port cities such as New York City or Mumbai, but in-land: the heartland. So, what's required for both countries, I think, is a cultural shift to the ocean. I think both the United States and India can support each other in making that shift.

Any suggestions for aspiring writers on how they can better address issues like climate change?

For me, the main goal is to get away from the old stories of domination, resource extraction and apocalyptic retribution. But that's easier said than done precisely because those stories have dominated for so long. This is why we need writers very badly right now, people working in fiction, non-fiction, in all art forms and media. I think we need everything from local stories to large-scale stories looking at entire civilizations; we need more comedies than tragedies; we need stories of small changes that made a difference and stories of big culture shifts that actually worked out.

When it comes to climate change, we have the science; we have many engineering solutions. What we now need is a cultural shift. I think that's the hardest of the three, and yet we're not tackling it with enough determination, but I feel things are changing bit by bit.

Martin Puchner
martinpuchner.com

"Literature for a Changing Planet"
bit.ly/44oEWYV

Make some noise for Kelsey Rae and 2B1, who upcycle trash into musical instruments, building awareness on climate change.

From Trash to Music

BY CHARVI ARORA

Kelsey Rae and 2B1 can make you groove to the sound of your trash. This five-member American band rescues garbage and brings it back to life as musical instruments, using them in performances around the world.

The group—Kelsey Rae, Ivan Cruz, Pablo Barragan, Ryan Dahir and Anthony Grant—has been touring for the last decade to build awareness on climate change. Using upcycled suitcases, toolboxes, metal trash cans, rubber barrels, pots, pans and other landfill-rescued items, they spread the message of saving our planet. The band performed in New Delhi, Mumbai and Pune in 2023. SPAN spoke to 2B1 leader Kelsey Rae on the sidelines of the Climate Action Festival at the American Center New Delhi.

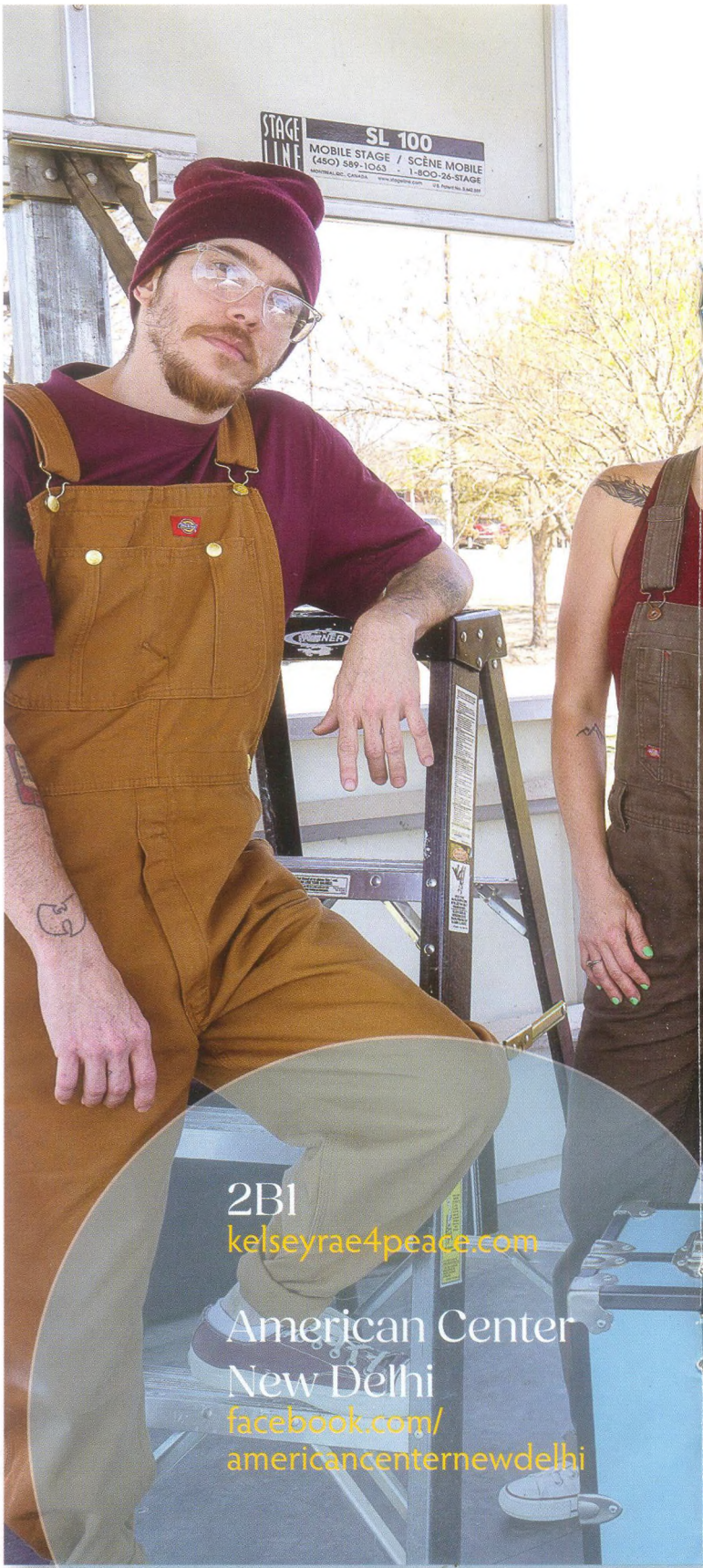
Excerpts from the interview.

Can you tell us how you see music's role in climate action?

I see music's role in climate action as a way to plant a seed with the youth and all ages globally. Music is a universal language, and while the entire world is feeling the results of climate change, our music brings a voice for the planet.

Tell us about the musical instruments you use. Do you have any favorites?

We have a wide variety of unique instruments—a tool box and washboard guitar, trash cans, rubber barrels, pots, pans and much more. I would say my favorite has to be the guitars. They always strike up a creative conversation in some way.



Drewlio Photography

RIGHT / Kelsey Rae (second from left) and 2B1 use landfill-rescued items to make their musical instruments.

'Music is a universal language, and while the entire world is feeling the results of climate change, our music brings a voice for the planet.'

Photographs by Zahoor Hussain Bhat

LEFT / Kelsey Rae and 2B1 at a workshop on conscious creation, and in a jam session (above) with upcycled instruments during the Climate Action Festival at American Center New Delhi.

What response have you seen to your upcycled musical instruments?

We've heard about young people creating instruments, art projects, even clothing designs of recycled products after seeing our show. A big part of our performance is including the audience and allowing them to share ideas and ways they can help make a difference. The response and creativity we have seen is amazing.

What are your thoughts on inspiring more young people to take up recycling?

The whole purpose is to continue inspiring the youth for as long as I can. I do believe recycling is a big part of creating change. However, reducing waste is even more important. So, I am dedicated to continuing to bring conversation through song. I feel it is the reason I was given the gift of a voice, it is meant for something beyond myself.

How do you connect with youth to start conversations about their impact on the environment through songs they recognize?

The show's energy and variety is what really stands out. Our younger audience recognizes some songs, but not all. We cover songs from Bob Marley to Michael Jackson and also have a few originals such as, "Be One World" and "Calling Out" (both recorded in Africa). They are all meant to make you feel good, hopeful and energized.

What message do you want to get across with 2B1?

Our goal is to continue to connect with every race, culture and age group all around the world. We're all in this together and connected to every being on this planet. Our message is 2B1 with our planet and 2B1 with one another.

Please tell us about your experiences of performing in India.

India was such a wonderful experience. The youth and people inspired us beyond belief. We were blessed enough to perform at numerous schools, with an amazing puppeteer, Ramlal Bhatt, and with the talented drum group, Dharavi Rocks. We connected and created so many friendships and learned so much about India, its amazing food and rich culture.

IVLP alumna Pratibha Bharathi quit her job as a techie to create ecofriendly alternatives to single-use plastic.

Rewriting the Narrative on Plastics

BY KRITTIKA SHARMA

Photographs by World Kentucky / Courtesy Flickr

(Courtesy Pratibha Bharathi)

ABOVE LEFT / Pratibha Bharathi (center) gifts handmade products made by Indian women entrepreneurs during her IVLP in the United States. / TOP / Bharathi and other IVLP participants at Maker Space, an innovation hub used to build and test prototypes. / ABOVE / Nature's Bio Plastic manufactures biodegradable cutlery, bags and packaging.

Nature's Bio Plastic
naturesbioplastic.com

IVLP
bit.ly/3OcZ9eM

India currently generates around 3.4 million tons of plastic waste. Most of this waste ends up in local landfills or aquatic dumps. Hyderabad-based start-up Nature's Bio Plastic, founded by Pratibha Bharathi, offers a simple alternative, one that has the qualities of plastic but is not as harmful to the environment—bioplastics. These are made of nature-derived components like corn or cassava starch, which give them tenacity and sturdiness to replace plastic. Bioplastics are biodegradable, have a long shelf life, and are environment-friendly. Nature's Bio Plastic produces items that can be used in daily life, as greener alternatives.

In 2023, Pratibha participated in an International Visitor Leadership Program (IVLP), the U.S. Department of State's premier professional exchange program. She also participated in U.S. Consulate General Hyderabad's workshops for Women Entrepreneurs in the Green Economy.

A story of determination

Before becoming an entrepreneur, Pratibha was a software engineer. "I wanted to start a business of my own, which could be innovative and provide job opportunities," she says. "After working for 13-and-a-half years in multinational companies, I felt it was time to quit and do something for myself."

Bioplastics are plastic alternatives made of nature-derived components like corn or cassava starch, which give them tenacity and sturdiness.

Pratibha says she was inspired by her father, also an entrepreneur. "My father used to make decisions independently. He was the soul of his enterprise," she says. "His individuality and leadership inspired me."

The determination to start a business took Pratibha through tons of research to develop expertise. She taught herself molecular biology by researching and consulting with scientists at the Centre for Cellular & Molecular Biology in Hyderabad to prepare for her role as the founder of Nature's Bio Plastic.

Pratibha experimented with starch sources like sweet potatoes and tapioca but found these bags had a shorter shelf life. "The early products would start degrading within 20 to 30 days. They were not market-ready," she explains.

Eventually, Pratibha connected with a junior scientist at the Indian Council of Agricultural Research to develop the current formulation. "Now, our product, which is a blend of polylactic acid and polybutylene adipate co-terephthalate, starts degrading in 90 days to 180 days." They are also compostable.

Nature's Bio Plastic specializes in carry bags, dustbin liners, shoe covers and head caps. "Recently, we created a prototype of disposable water bottles," she says. The start-up has certifications from the Central Pollution Control Board and CIPET: Institute of Plastics Technology, Kochi.

The IVLP experience

Pratibha describes her IVLP experience as a "once-in-a-lifetime opportunity."

"I have seen how entrepreneurship and small business work in India. Through the IVLP, I got the opportunity to see how entrepreneurs and small businesses function in the bioplastics sector in the United States," she says. Pratibha also met several women entrepreneurs from the sustainability sector. However, what struck her was the support start-ups and small businesses get to start operations, allowing them to focus on partnerships and networking.

Pratibha has a clear view of what she wants to do next. "I want to mentor women entrepreneurs looking for support, knowledge and financial backing," she says. "Every entrepreneur needs a mentor to tell them how to navigate policies, certifications and finance. I want to help women looking for guidance, especially when planning to start a business."

Giving others a leg up

As a woman entrepreneur, Pratibha feels strongly about helping other women business owners avoid the mistakes she made. And her advice is to research thoroughly to gain the necessary knowledge on their subject. "We need to be thorough on the pros and cons of the product that we are planning to come up with," she says.

"Before starting the business, while ideating, have a strong understanding of your particular product, and evaluate how feasible it would be for you in the future—up to five to 10 years," she adds. Pratibha also advises business owners to keep an alternative in mind if the initial product doesn't take off. "We don't easily step back. Every woman has leadership qualities. That leadership quality, with some background work, can help entrepreneurs find success more easily."

Photographs courtesy Sonal Shukla

LEFT / Re-Bench is made from 45 kilograms of plastic waste and saves more than 52 kilograms of carbon dioxide emissions. / ABOVE / A planter made from recycled plastic.

Sonal Shukla's start-up, econscious, reduces plastic waste pollution through an innovative recycling model.

Creating Wonders

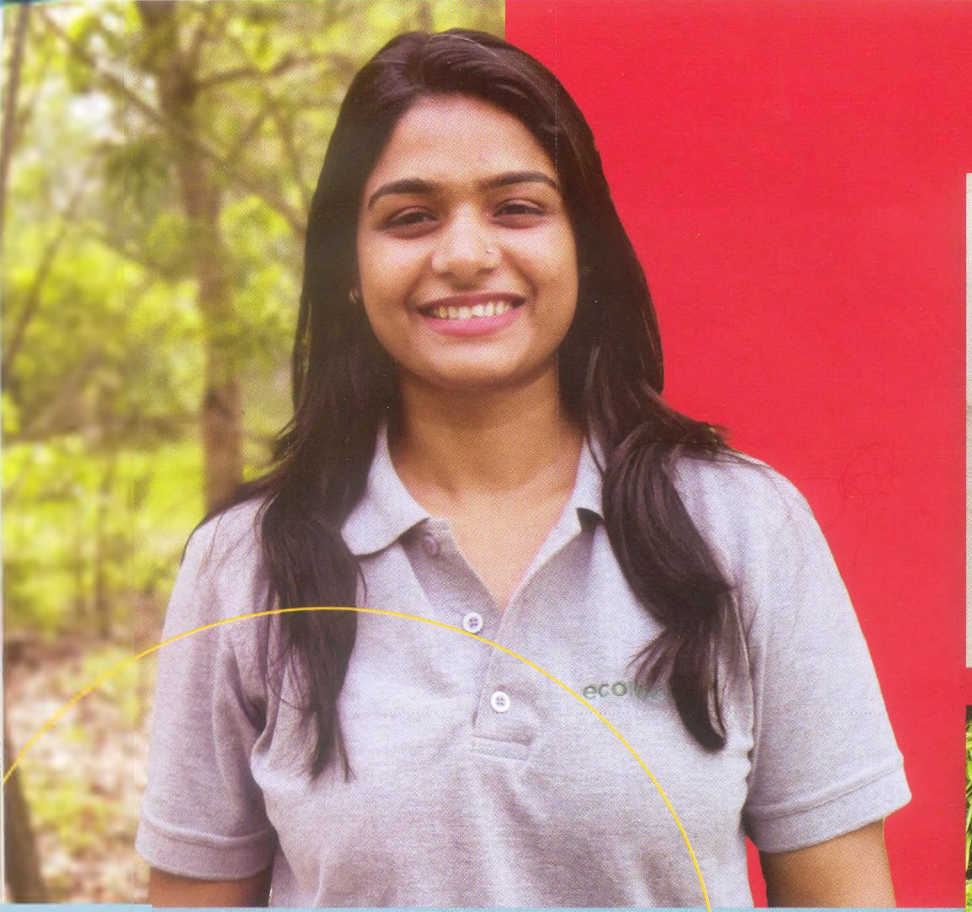
BY ZAHOOR HUSSAIN BHAT

The harmful impact of plastic on the environment is undeniable. India produces 3.4 million tons of plastic waste annually, of which only 30 percent is recycled, according to a report by the Marico Innovation Foundation. The remaining plastic waste is dumped, causing land and water pollution.

The most viable solution to mitigate the harmful impact of plastic waste is sustainable recycling. This is the goal of econscious, a New Delhi-based start-up co-founded by engineers and Nexus alumni Sonal Shukla and Vaibhav Verma. They create ecofriendly products for gifting, decor and public utility through their waste collection and recycling model.

Shukla recently spoke to SPAN magazine, on the sidelines of the "We The People For Climate Action Festival" at American Center New Delhi.

Excerpts from the interview.



Hey, I'm made from 100% recycled plastic
Hey, I'm made from 100% recycled plastic
Hey, I'm made from 100% recycled plastic
Hey, I'm made from 100% recycled plastic
Hey, I'm made from 100% recycled plastic

econscious
econscious.co.in

Nexus
Start-Up
Hub
startupnexus.in

What led you to become an entrepreneur?

Our journey as entrepreneurs began three years ago. Vaibhav and I crossed paths during our M.Tech days and discovered our shared interest in the environment.

I have an electronics and communication background. Though I enjoyed my field, I did not find my monotonous daily routine fulfilling enough. Luckily, Vaibhav was pursuing a master's degree in environmental engineering, which inspired us to venture into the sustainability sector for our start-up.

Shifting from my established field to start something of my own was a huge leap of faith. I knew that this journey would require courage, but I was ready to chase my passion for creating positive change in the world.

Photographs courtesy Sonal Shukla

TOP LEFT / Sonal Shukla co-founded econscious with Vaibhav Verma (above left). TOP, ABOVE CENTER AND ABOVE / The start-up's product range includes gift items, dustbins and planters.

What inspired you to launch econscious? How is it different from other start-ups in this sector?

The journey of econscious began during a memorable mountain trip where we saw the beautiful scenery tarnished by plastic waste. This was just before the COVID-19 pandemic, and it left a deep impression on us. Our shared passion for the environment led us to conversations about sustainability and zero-waste management. Within three months we had a basic plan for econscious. In November 2020, we launched our first product.

At econscious, we collect and process post-industrial plastic waste into products of utility and decor. Our product range includes park benches, dustbins, planters and gift items. Our products are all made from recycled plastic and have a unique look. We also let our customers know about the impact of their choice on the environment. Our USP is the customizations that we offer our clients.

We have recycled over 150,000 kg of plastic waste. We have increased awareness through educational initiatives, and empowered individuals and communities to make ecofriendly choices and understand the impact of plastic waste.

How important is plastic recycling? How can people minimize the impact of plastic on the environment?

Plastic recycling plays a vital role as the complete elimination of plastic is currently not feasible. However, we can take steps to reduce usage and dispose of it responsibly. Recycling helps conserve resources, save energy and prevent pollution. To minimize plastic's impact on the environment, here's what one can do:

- Use less single-use plastic and choose reusable options.
- Separate plastic waste and follow local recycling guidelines.
- Opt for ecofriendly materials like paper, glass or biodegradable plastics.
- Spread awareness about plastic recycling and encourage sustainable choices.
- Participate in cleanup events, back organizations working on plastic waste, and advocate for stricter regulations.

How successful have you been so far in your mission to promote sustainability?

We have made significant progress in promoting sustainability through econscious. We have recycled over 150,000 kg of plastic waste.

We have created jobs for individuals involved in plastic waste management, which also helps the local economy. We have increased awareness through educational initiatives, and empowered individuals and communities to make ecofriendly choices and understand the impact of plastic waste.

Which econscious products are most in demand? Any collaborations you can share with us?

Our product portfolio consists of around 35 to 40 items, but our Re-Bench, a recycled plastic bench, and some of our gift products are the ones that sell the most. A majority of our customers are organizations that are passionate about making a positive impact. They include NGOs, corporate foundations and government authorities.

What are your key takeaways from the training at the Nexus Start-Up Hub at American Center New Delhi?

The two months we spent at Nexus were unforgettable and enriching. I had some initial worries about managing the in-person attendance along with running the business. But, to my surprise, it turned out to be an effortless experience. The training program was so comprehensive. It not only taught us new things but also helped us unlearn many old practices. Even after the program ended, the support we have been receiving from Nexus is something that we are deeply grateful for.

Tell us about your future plans.

Our future plans revolve around expanding our impact and promoting sustainability. We plan to venture into the recycling of other types of waste. In addition, we plan to introduce new ecofriendly products to make sustainable choices more accessible and appealing. We are determined to create a future where sustainability is at the forefront, inspiring others to join us in building a healthier and more sustainable world.

Remanufacturing can reduce dependence on natural resources and create a resource-efficient economy.

Building a Circular Economy

BY RAJIV RAMCHANDRA

I founded Re:CREATe in 2019, about six months before the COVID-19 lockdown. The inspiration behind Re:CREATe came from a policy research project I worked on with the EU-REI (European Union-Resource Efficiency Initiative) program and the Government of India, which provided the status of circularity, concerns and opportunities in four focus areas crucial in India's transition to a circular and resource-efficient economy. My focus was on steel and aluminum.

The research uncovered that remanufacturing was not being seriously considered in the evolutionary

Graphic by Hemant Bhatnagar

journey of the nation's economy. A recommendation of the report was to "establish a remanufacturing council or association to catalyze the growth of the remanufacturing industry." This felt like a calling to me, and I set about to make it happen.

What is remanufacturing?

Remanufacturing is an industrial process in which worn or non-functional products are returned to a same-as-new or better-than-new condition and performance. This way, end-of-life products and components are brought back into the economy, reducing the need for fresh natural resources. To qualify as legitimate remanufacturing, the process should be in line with specific technical specifications, including engineering, quality and testing standards, and should yield products with full warranty.

Remanufacturing is an industrial process in which worn or non-functional products are returned to a same-as-new or better-than-new condition and performance. This way, end-of-life products and components are brought back into the economy, reducing the need for fresh natural resources.

Raising awareness

Re:CREATe has been building awareness and coalitions within the industry by partnering with private sector companies and industry bodies, both within and outside India.

In April 2022, Re:CREATe partnered with the U.S. Consulate General Mumbai and the Indo-American Chamber of Commerce to host a hybrid event titled, "Remanufacturing: The Future of Sustainable Business." Speakers included John Chalifoux, chief sustainability officer at MEMA, The Vehicle Suppliers Association, which is headquartered in Washington, D.C.; and Sushant Naik, global head for government and public affairs at Tata Motors. Additionally, I visited the Pune facilities of Cummins India in May 2022 to learn more about their remanufacturing operations and discuss the opportunities for the growth of remanufacturing in India. Cummins is an American multinational corporation that specializes in fuel engines and generators.

Benefits of remanufacturing

Remanufacturing can:

- Help reduce greenhouse gas emissions by 79 to 99 percent in appropriate sectors.
- Reduce the requirement of new material by 80 to 98 percent.
- Increase skilled labor hours by up to 120 percent since remanufacturing, and sometimes refurbishment, have larger requirements for skilled labor.
- Lower production cost since remanufactured products are typically 60 to 80 percent of the cost of a new product due to savings from recovery of materials and energy content.

Let us look at a couple of examples. As the demand for electric vehicles and other battery-powered devices grows at a rapid pace, remanufacturing used batteries presents a huge opportunity, ecologically, socially and economically. Batteries contain hazardous substances that can contaminate soil and groundwater, if not disposed of properly. Additionally, mining of materials like lithium, which is used in electric vehicle batteries, can also have negative environmental impacts. By remanufacturing batteries and giving them multiple full-use life cycles, these materials can be prevented from ending up in landfills or entering the environment, where they can harm human health and the environment, as well as reduce the need to extract and consume natural resources.

Remanufacturing could also help increase access to medical imaging devices like X-ray, CT scan or MRI machines. Hospitals or laboratories in low-income settings looking for upgrades could potentially opt for remanufactured imaging devices as they would be less expensive than new equipment but would work just like new. This is part of the broader movement of providing sustainable, affordable and accessible health care around the world.

It is crucial however, that the practice of remanufacturing is carried out in alignment with robust standards

Courtesy Cummins India

Courtesy U.S. Consulate General Mumbai

TOP / Rajiv Ramchandra (center) visits Cummins India's facility in Pune to learn about their remanufacturing operations. ABOVE / Ramchandra (left) participates in a hybrid event on "Remanufacturing: The Future of Sustainable Business," organized by U.S. Consulate General Mumbai.

and credible certifications, to ensure the highest product quality, as well as safety for all those in the value chain. Of course, products cannot be remanufactured indefinitely and material recovery systems through recycling also have their place in the overall industrial ecosystem. However, recycling should not be seen as the holy grail of the architecture of a circular economy.

Sustainable manufacturing

Remanufacturing takes place in various industries including the automotive, aerospace, consumer appliances, machinery manufacturing, electronics and medical device industries. Remanufacturing could potentially be expanded by leveraging government programs like Make in India, as well as production-linked incentives geared toward sustainable manufacturing. Consumer awareness campaigns have an important role to play to highlight the social, environmental and economic benefits of remanufactured products and dispel misconceptions that equate remanufactured products to second-hand goods.

RAJIV RAMCHANDRA is a sustainability practitioner, entrepreneur and founder of Re:CREATe.

"I think one of the best things I have learned from my liberal arts education with the Davis Program," says Gauri Mirashi, "is the ability to hold multiple, sometimes conflicting, ideas in my head simultaneously." As the co-founder and chief executive officer of EcoSattva Environmental Solutions—a women-led company working on waste management, water body restoration and green cover management—Mirashi knows something about holding multiple, competing aims and developing them into a workable vision.

As part of the Davis United World College Scholars Program, Mirashi graduated from Mahindra United World College (UWC) of India. She then completed her undergraduate studies in liberal arts from Whitman College in Washington state. The Davis United World College Scholars Program is a privately funded international scholarship program, where students who have graduated from one of the 18 UWC schools go on to study at selected U.S. colleges or universities.

Birth of EcoSattva

Mirashi co-founded EcoSattva Environmental Solutions in 2016 with Natasha Zarine in Aurangabad, Maharashtra. "We work to restore water bodies so they can continue to perform their functions of recharge, flood control, temperature regulation and biodiversity support," explains Mirashi. "We enable local self governments to provide effective solid waste management, green cover management and water body management services by optimizing existing resources." The company's mandate includes providing collection vehicles, collection staff and processing units.

"In India, the Clean India Mission has led to massive investment in equipment and infrastructure for solid waste management. However, in the absence of effective systems this investment often remains under or unutilized," says Mirashi. She shares an example from

Whitman College alumna Gauri Mirashi aims to create sustainable cities by empowering communities to live in harmony with their surroundings.

Managing Waste to Improve Communities

BY TREVOR L. JOCKIMS

the city of Alibag in Maharashtra, where she worked on an intervention. The local body had invested in a biogas plant with a capacity of processing up to 3 tons of waste per day. However, without collection systems to deliver 3 tons of organic waste every day, the plant was shut down.

It is precisely such situations that EcoSattva seeks to address. It aims to recover maximum possible resources from source-segregated dry waste that municipal collection systems can then deliver to recycling facilities.

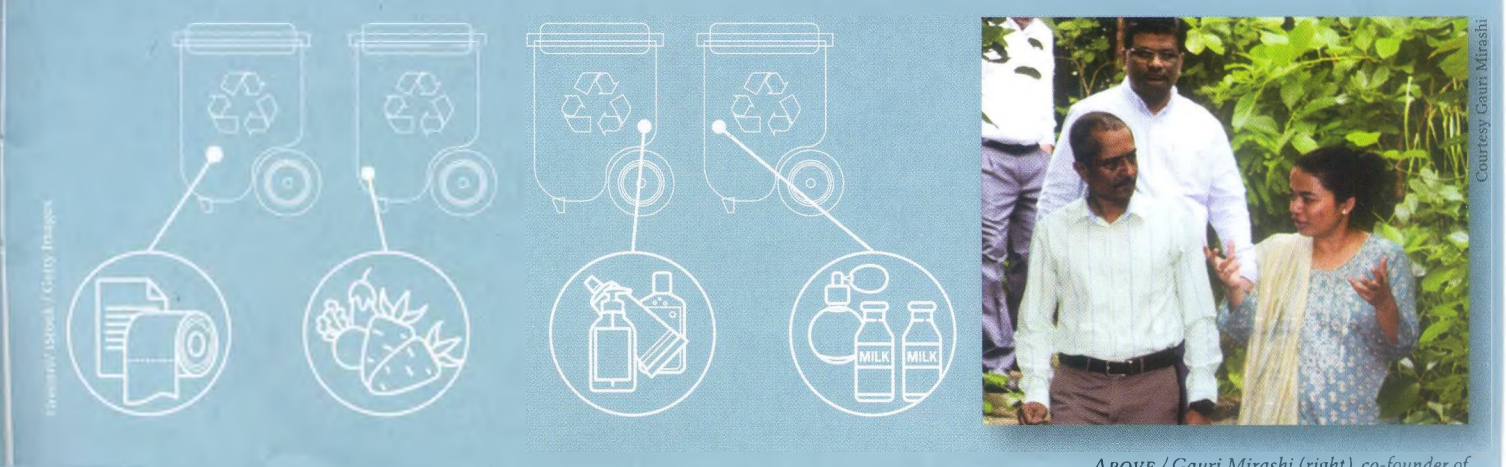
Mirashi hopes more people will use the process, which would help residents and city administrators understand the value of a Material Recovery Facility to the city. Each facility manages 2 tons of waste, including items like clothes, cardboard, paper, glass, mixed plastics, even slippers. "This center not only manages waste but also helps spread awareness about waste reduction," Mirashi adds.

Making an impact

In the span of EcoSattva's seven-year journey, it has generated 2,500 jobs, mostly in solid waste management. Beyond its core objective of providing clean water to communities, EcoSattva also empowers community members to take responsibility for their natural resources by getting them involved in clean-up operations. One such memorable cleaning project is the Clean Kham Movement—the restoration and cleaning of the Kham river and its tributaries, which was carried out ahead of Republic Day, on January 25, 2022. The entire community, including administrative officials and municipal workers, welcomed the project on its first day as a fleet of excavators lined up to dig out waste from the river bed. Since then, the cleanup has been carried out on a weekly basis.

What's next for EcoSattva? Mirashi hopes to expand to other cities and explore partnerships with other organizations. But more importantly, she wants to use EcoSattva's "experience, data and expertise to contribute to the larger pool of knowledge in the environmental sector."

TREVOR L. JOCKIMS teaches writing, literature and contemporary culture at New York University.



Courtesy Gauri Mirashi

ABOVE / Gauri Mirashi (right), co-founder of EcoSattva Environmental Solutions.

Online marketplace Brown Living wants to make sustainable consumption the new normal.

Living Sustainably

BY KRITTIKA SHARMA

Photographs courtesy Chaitsi Ahuja

Brown Living
brownliving.in

Fempreneurs Upskilling Program
bit.ly/43nyolZ

If sustainable, cleaner alternatives to daily-use items, like your floor cleaner and hand soap, were made more accessible, would you make the swap?

Chaitsi Ahuja, founder and chief operating officer of Brown Living, wants to make sustainable consumption the new normal. Her start-up is an online portal that helps sustainable businesses showcase their products on one platform, scale their operations and earn profits.

Ahuja participated in the Fempreneurs Upskilling Program, a U.S. State Department-supported initiative to train women entrepreneurs how to run a business, find investors and develop networks.

Shifting behaviors

Ahuja's awareness about climate change started early when she saw her father's textile business in Ahmedabad involved a lot of water wastage. "I grew up to really understand how production processes of textiles can impact the planet," she says.

She also remembers how her father's factory depended heavily on coal. "There was a lot of pollution from these manufacturing units. It was also a textile dyeing, printing, finishing and processing factory, so we used chemicals to dye the fabric so they would last. But, in that process, the chemicals were also being released into the waterways."

She realized that even though there was a need and demand for cleaner products, they were not easily available or were

ABOVE LEFT / Chaitsi Ahuja (right) with the Brown Living team. *LEFT AND FAR LEFT / The Brown Living team participates in a beach cleanup.* *RIGHT / Ahuja (left) with film producer and environmentalist Pragya Kapoor, who is an investor and business partner at Brown Living.*

expensive. Ahuja saw this as an opportunity. "Finding a sustainable product has to be easy; it has to be affordable and available," she says. "That behavior [of sustainable consumption] will only continue if the product is consistently available in places around you."

Brown Living, says Ahuja, helps consumers replace toxic everyday items with more environmentally-friendly choices at an affordable cost. According to the Brown Living standards, it is not just the product that is sustainable, but also the process.

The start-up has created a set of parameters, called the Brown Lens, to distinguish between truly sustainable businesses versus those that just look the part. It considers the product source, the method, the packaging, the product's afterlife and the usability.

Courtesy Chaitsi Ahuja

Consumers looking for sustainable options research diligently and are picky about what they use, observes Ahuja. This is why getting the paperwork, certification and brand messaging correct is crucial to finding a footing in the market.

Helping brands scale up

Ahuja says smaller businesses usually reach a stage where they need help to scale up, and Brown Living helps them do that. "Typically, people who come to us have a product in place, though they may or may not have launched yet," she explains. "These are typically small- and medium-sized businesses that don't have massive ad budgets or a public relations team to do a launch. They have a great product, an operating procedure, and an understanding of the market, but need help with packaging or telling a brand story. And we get them on board. We evaluate the whole thing in terms of our sustainability lens, and list them on our platform."

However, not all brands come prepared with the paperwork that Brown Living needs to endorse them as sustainable. "Our team does a lot of the legwork—we ask the brands for information and we have systems in place to capture all of that," Ahuja explains. Brown Living also does the background work for brands that do not have the necessary documentation, sometimes even helping them get in touch with verified and certified suppliers.

Building a sustainable business

As someone who helps businesses earn the sustainability mark in a competitive environment, Ahuja believes brands need to shift attention to making their processes sustainable. "Right from the kind of materials you're working with, ensure that you have either the right suppliers or there will be a lot of research and development that you'll have to do." Secondly, she says, pick a specific market for your product, keeping consumer demands and pressures in mind. "You have to find the right balance in terms of the category and the market size. For example, a lot of people are interested in food, fashion or skincare. These are all exciting categories," she says.

Consumers looking for sustainable options research diligently and are picky about what they use, observes Ahuja. This is why getting the paperwork, certification and brand messaging correct is crucial to finding a footing in the market. "It is important to have the right words written on your packaging, the right words written about your brand, because it's easy to get lost in the greenwashing battle."

Ahuja's vision for Brown Living goes beyond just an online presence. "We are starting a new foundation and plan to use that to build relationships and digitize [access to] grass-root level artisans." She also plans to turn Brown Living into a combination of her entrepreneurial work and the foundation, which will work with think tanks and accelerators to make sustainable consumption a new normal.

Courtesy Sasmita Mohapatra

ABOVE / *The IVLP participants learned about U.S. efforts to protect species and habitat diversity at the University of Georgia's Marine Education Center and Aquarium.*

Four IVLP participants from Odisha explore U.S. efforts to mitigate climate change.

Exploring Solutions

BY CHARVI ARORA

Four environmentalists from Odisha have returned from the United States, inspired by a three-week exchange program. Sasmita Mohapatra, Bhabani Sankar Tripathy, Archana Soreng and Sagar Kumar Patro were selected to participate in the U.S. State Department's International Visitor Leadership Program (IVLP) on "Climate Change and Biodiversity Conservation in the United States" in March 2023. The IVLP is the State Department's premier professional exchange program. Through short-term visits to the United States, participants gain firsthand experience and cultivate lasting relationships with their American counterparts.

Mohapatra, Tripathy, Soreng and Patro toured Oregon, Washington, D.C., Georgia and Massachusetts to explore U.S. government programs and non-government strategies to reduce greenhouse gas emissions and support human and natural populations at risk due to weather disruptions. They also examined U.S. efforts to protect species and habitat diversity through environmental laws, protection policies, scientific research and environmental education. Meet the IVLP participants, and learn more about their inspirations and takeaways.

Sasmita Mohapatra

I am: A zonal facilitator at Tata Community Initiative Trust, an eco-entrepreneur and co-founder of Climate Warrior Rourkela.

I got interested in climate issues: In childhood. I later formed Climate Warrior Rourkela to tackle local environmental issues.

Impact of my work that I am most proud of: Our cleaning drives, awareness programs and social media posts to keep rivers plastic-free pushed local government bodies to enforce regulations. Many shopkeepers switched to ecofriendly alternatives, students and individuals in our network reduced plastic consumption.

My latest climate project is: A campaign called "1000 vs 1000: Replace, Reuse, Revive." It starts with a drive to turn donated clothes into reusable bags with a message. We will also give vegetable sellers campaign cards with a message for their customers. Finally, we will share a video of the campaign on social media to raise awareness and encourage participation.

The IVLP program taught me: Collaboration is key to addressing climate change. Initiatives like Mama & Hapa's zero-waste shop, and 350 Eugene's grassroots work demonstrate the power of local movements. Creating inclusive spaces in initiatives, involving youngsters and educating communities are crucial to foster environmental stewardship.

One thing that surprised me during the IVLP: The remarkable level of dedication and participation from all age groups.

One can be a climate warrior by: Discovering your purpose and making a positive impact with activism, lifestyle changes, creative expression or utilizing skills.

My future projects are: A collaboration with local tender coconut sellers to promote sustainable straws. Plans to rejig and expand Gift Crop, our ecofriendly product business. Engagement with government bodies and Rourkela Steel Plant to address river pollution.

BELOW / Sasmita Mohapatra (left) presents a gift item from Odisha.

Courtesy Sasmita Mohapatra

BELOW / Bhabani Sankar Tripathy (center) at a tree-planting activity during the IVLP.

Courtesy Bhabani Sankar Tripathy

Bhabani Sankar Tripathy

I am: A journalist and bureau head of Sambad, an Odia daily newspaper.

I got interested in climate issues when: I was writing about the river Mahanadi while reporting on a movement for a separate state in western Odisha. I found that the river was dying, affected by climate change, and impacting biodiversity and livelihoods.

One impact of my work that I am most proud of: The Archaeological Survey of India has started the restoration of Konark temple. I have written about the threat to the temple—the statues and stone carvings on the walls have been damaged by climate change.

My latest climate project is: Sensitizing the public and policymakers on climate change and its effects on the common man. I am formulating ways to bring grassroots issues to the state government's attention.

My takeaways from the IVLP visit: I can write on more climate-related topics like environmental politics, eco-economics, environment and social issues, environmental justice and advocacy. I have formed an organization to spread awareness about climate issues and their consequences. I have also started writing two books—one on my IVLP experience and memorable moments in America, and another on critical aspects of climate change regarding biodiversity.

One thing that surprised me during the IVLP: The contributions of some nonprofit organizations toward climate and environmental issues—from policy formulation to project implementation—in the United States.

One can be a climate warrior by: Creating awareness on climate change and its impact, talking about sustainable development, choosing green modes of transport and locally-made products, composting and planting trees.

Future projects: A new website and a YouTube channel to create awareness on climate change and environmental justice.

Archana Soreng

I am: A climate change activist and researcher from Sundergarh in Odisha.

I got interested in climate issues: After grade 10, when my parents told me that if I really wanted to contribute to society, I need to enter policy-making. My grandfather was the pioneer of community-led forest protection in our village.

One impact of my work that I am most proud of: I have been advocating for leadership and participation of indigenous people in climate policies. It has helped reclaim spaces for indigenous people, amplify their perspectives and offer them recognition.

The IVLP program taught me: The diverse impact of climate change, policy-making and implementation in the United States, and the contribution of indigenous people in the United States toward climate action and biodiversity conservation. I also learned about the importance of research and documentation and how critical they are at the global level.

One thing that surprised me during the IVLP: The realization of how all actions start with reflection and intent to contribute to the process and address the issue. It affirmed my belief that we all can make a difference in our own way.

One can be a climate warrior by: First acknowledging that we are in a climate crisis and need to take action, and by speaking up and advocating for climate action.

My future projects: I am working with a youth group as part of the indigenous caucus for the United Nations Framework Convention on Climate Change (UNFCCC) to amplify the perspectives of young people from indigenous communities in international spaces.

BELOW / Archana Soreng (right) talks about her journey and work with the Odia community during an interaction in Boston.

Courtesy Sasmita Mohapatra

BELOW / Sagar Kumar Patro (left) at an IVLP activity in Portland.

Courtesy Sagar Kumar Patro

Sagar Kumar Patro

I am: President of Anchalika Vikash Parishad, a voluntary organization based in Gunthabandha village in Odisha.

I got interested in climate issues when: I realized one morning, as a child, that I was missing the sound of house sparrows. I researched the bird and started working on house sparrow protection and breeding programs.

One impact of my work that I am most proud of: My organization's efforts to plant trees on hills, roadsides, pond banks and schools, which helped restore the habitat for animals and birds. We were losing local wildlife due to the felling of trees.

My latest climate project is: The house sparrow protection and breeding program in 30 villages across Odisha.

My takeaways from the IVLP journey: The opportunity to exchange ideas, and gain knowledge on nature conservation, social responsibility, education, health, culture and consensus.

One thing that surprised me during the IVLP: The direct role of public and private institutions in forest, zoo protection and social responsibility management.

One can be a climate warrior by: Protecting nature and the biodiversity around us.

My future projects are: Environment and bird conservation in wetlands near Tampara lake, conservation of Egyptian vultures in Ganjam, public awareness on safety of olive ridley sea turtles, protection of wetlands and crocodiles of Ghodahada Dam, protection of the grazing land of black bucks.

Nexus alumnus and entrepreneur Sanjay Maurya helps break down how we can contribute to cleaner air.

Combating Air Pollution

BY SANJAY MAURYA

Air pollution is one of the biggest threats to public health in India. A study published in The Lancet Planetary Health estimates that 1.67 million deaths were attributable to air pollution in India in 2019. The majority of these deaths were from ambient particulate matter pollution and household air pollution.

The combined effects of ambient air pollution and household air pollution are associated with 6.7 million premature deaths annually, according to World Health Organization (WHO) data published in 2022.

The health impact

Prolonged exposure to polluted air poses serious risks to both physical and mental well-being. Particulate matter in polluted air can penetrate deep into the lungs, leading to respiratory problems, decreased lung function and compromised immunity.

Toxic pollutants like sulfur dioxide, nitrogen oxides and volatile organic compounds present in the air have detrimental effects on cardiovascular health. Studies have linked long-term exposure to air pollution to an increased risk of asthma, lung cancer, heart disease, strokes and other respiratory ailments. Children, the elderly and individuals with pre-existing health conditions are particularly susceptible to these health impacts.

Here's what you can do

People can take several measures to combat air pollution and promote healthier living environments. First, opt for sustainable transport options like carpools, public transport or cycles. This can significantly reduce vehicular emissions. When buying a vehicle, choose electric or hybrid variants, and maintain them regularly to minimize emissions.

Promoting sustainable practices at home is another crucial step. Opt for energy-efficient appliances, use LED lighting, and switch to renewable energy sources

Photographs courtesy Sanjay Maurya

ABOVE / Sanjay Maurya (second from right) with his team at UBreathe.

whenever possible. Insulate homes well to reduce the need for excessive heating or cooling, to conserve energy.

Indoor pollution should also be minimized. Avoid use of pesticides and cleaning agents that release pollutants. Keep indoor spaces well-ventilated and consider using air purifiers to further filter out contaminants and enhance air quality.

Responsible waste management is an essential aspect of reducing air pollution. Dispose of waste responsibly and segregate recyclable materials. Avoiding open waste burning and composting are additional steps to consider.

Support green initiatives, encourage the creation of green spaces and urban gardening initiatives. Trees act as natural air purifiers and absorb pollutants, while green spaces provide breathing space in urban environments.

Advocating for change is crucial for long-term improvements. By raising awareness about the importance of clean air and its impact on public health, individuals can inspire others to act.

Engaging with local communities, participating in citizen-led initiatives, and putting pressure on policymakers to prioritize air quality improvements are effective ways to drive change and ensure a healthier future for all.

Learning from nature

UBreathe's Breathing Roots technology harnesses the natural air purification method of plants. The air purifier made with this technology has a unique design that boosts the phytoremediation process of plants by approximately 500 times with the help of a centrifugal fan.

Phytoremediation is a process that uses plants to remedy polluted soil, water and air. The presence of a fan increases the volume of air at the soil-root zone, enabling the root microbiomes to interact with more air and purifying it.

The existing mechanical filters in the market are quick and crude, take long to degrade and have a high carbon footprint. UBreathe's plant-based natural purifier covers the whole spectrum of air quality while leaving no carbon footprint behind.

ABOVE / UBreathe's air purifier harnesses the natural air purification method of plants.

SANJAY MAURYA is a Nexus alumnus and co-founder of UBreathe.

Courtesy USAID

ABOVE / USAID Asia Bureau Assistant Administrator Michael Schiffer at the New Delhi Railway Station.

USAID is working with the Indian Railways on the network's transition to net zero energy by 2030.

Energy-Efficient Railways

BY NATASA MILAS

The Indian Railway system is one of the world's largest railway networks. It is more than 170 years old and its tracks are spread across a massive 115,000 km. A large part of this system is run on fossil fuels. In fact, the railway system accounts for nearly 2 percent of the country's total energy consumption.

The U.S. Agency for International Development (USAID), through its clean energy programs, has been actively supporting the Indian Railways in its efforts to transition to clean energy and achieve carbon neutrality for its existing infrastructure by 2030. The work involves integrating energy-efficient and renewable energy technologies into its facilities like railway stations, offices, residential areas, yards and water supply, and adopting large scale renewable energy for rail operations across the country.

MAITREE

USAID supported the Indian Railways by providing technical assistance per the Indian Railways vision and guidelines for Net Zero Energy Buildings report, through the MAITREE (Market Integration and Transformation for Energy Efficiency) initiative. Under this initiative, Environmental Design Solutions, a

sustainability advisory firm that focuses on built structures, helped Indian Railways make the transition. The Railways is also investing in renewable energy generation and procurement from the grid. "This is also consistent with India's commitment to have 50 percent of its energy from non-fossil sources by 2030," says Tanmay Tathagat of Environmental Design Solutions.

The Railways is reducing the intensity of existing as well as future current drawn to buildings and infrastructure. "The Indian Railways has committed to follow the most stringent energy efficiency building standards, called the SuperECBC standard, for all new stations and buildings," says Tathagat. "The Railways is also upgrading its existing buildings by aiming for a net zero certification called 'Shunya,' promoted by the Bureau of Energy Efficiency," says Tathagat.

This is particularly important to achieve net zero energy goals as the Railways' building infrastructure uses a significant proportion of power. "Over 10 percent of the Indian Railways energy use goes toward [its] buildings' infrastructure and other non-traction purposes," explains Tathaghat. Traction energy is consumed for movement of trains while non-traction energy is used for offices, railway stations, yards, workshops, water supply and air conditioning.

The work involves integrating energy-efficient and renewable energy technologies into its facilities like railways stations, offices, residential areas, yards and water supply.

Tathagat says energy efficiency is critical to not only reduce the requirement for additional renewable energy, but also to make the investment in renewable energy cost-effective. To achieve this, the Indian Railways has started upgrading lighting, cooling and other appliances in most of its existing buildings to higher energy efficiency, called deep energy retrofits. It is a complex process, and in many ways reducing energy use in new buildings is a simpler task. "New buildings can be designed to have a lower carbon footprint and reduce energy use by use of better design and materials," explains Tathagat. But, investing in the incremental cost of energy-efficient technologies, design optimization and efficient operations has a shorter payback, he adds.

Tathagat is positive that the Indian Railways will be able to achieve its goal of energy efficiency by 2030. This is expected to facilitate a greater efficiency of the system, and a multipronged approach to the challenge of making buildings energy-efficient will also contribute to the national goals, over time.

South Asia Regional Energy Partnership (SAREP)

On December 27, 2022, Indian Railways signed the new Energy Efficiency Policy and Action Plan developed under USAID's regional energy programming, which will support India's net-zero carbon emissions target. This new policy, to be implemented nationwide, is the first time Indian Railways has put forward a comprehensive strategy to promote energy efficiency and represents an important milestone in USAID's partnership with Indian Railways. This initiative will have a significant impact on expanding energy efficiency and renewable energy technologies across the country.

The SAREP is the flagship regional energy program of the USAID. This five-year initiative (2021-26) is to improve access to affordable, secure, reliable and sustainable energy in India. It provides extensive support to Indian Railways to expand the use of renewable energy and energy efficiency in its operations. It is based on a four-pronged strategy—adopt carbon neutral or low carbon sources and increase consumption of renewable energy; shift from diesel to electric traction with 100 percent electrification; reduce energy consumption and improve energy efficiency and carbon capture and offset.

As a part of the program, Indian Railways integrated renewable energy in the form of solar panels that have been installed at more than 900 railway stations across the country. USAID Asia Bureau Assistant Administrator Michael Schiffer visited India in January 2023 to promote U.S.-India development partnerships, with a focus on clean energy transition and other shared energy-efficiency initiatives. Assistant Administrator Schiffer says, "With energy consumption on the rise, and effects of climate change increasing, USAID is proud to partner with Indian Railways as it leads the way on transitioning to renewable energy sources."

Natasa Milas is a freelance writer based in New York City.

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